

**IN THE UNITED STATES DISTRICT COURT  
FOR THE NORTHERN DISTRICT OF OHIO  
EASTERN DIVISION**

ROYAL APPLIANCE	)	CASE NO.	1:10-cv-2604
MANUFACTURING COMPANY, <i>et al.</i> ,	)	JUDGE NUGENT	
Plaintiffs,	)	MAGISTRATE JUDGE VECCHIARELLI	
v.	)		
FELLOWES, INC.,	)	<b>REPORT AND RECOMMENDATION</b>	
	)		

On Monday, July 23, 2012, the court held a Markman hearing over the construction of claims in United States Patent Nos. 7,963,468 (“the ‘468 patent”) and 8,020,796 (“the ‘796 patent”). Both Royal Appliance Manufacturing Company (“Royal”) and Fellowes, Inc. (“Fellowes”) offered argument and evidence, and neither offered witnesses. The relevant law and evidence and the court’s recommended constructions are described below.

**I. Background**

The patents at issue in this case are held by Fellowes and involve anti-jamming technology used in office shredders. The ‘468 patent discloses and claims various

methods for preventing jamming. The '796 patent discloses and claims a solution to the problem of "false alarms," *i.e.*, shredder shut-offs when a sensor incorrectly determines that the shredder has been overfed. The patents are described in more detail below.

A. *The '468 Patent*

The '468 patent is a continuation of U.S. Patent No. 7,631,822 ("the '822 patent"). The '468 patent describes a shredder that includes a thickness detector as an aid to avoid jamming. In various configurations, the detector may interact with the shredder's motor, a controller, a sensor, and light or sound displays to warn of or stop possible jams.

All claims in the '468 patent describe a shredder that includes a feed-aperture into which material to be shredded is fed. The thickness detector is a structure mounted on a pivot, and part of the thickness detector extends into the feed-aperture. The thickness detector is configured so that it may assume either of two positions. The first position allows operation of the shredder's cutting mechanism, and the second position prevents operation of the cutting mechanism. Feeding material into the aperture moves the portion of the thickness detector that extends into the aperture. When the amount of material fed into the aperture reaches a predetermined thickness, the material moves the detector enough to shift it from the first position to the second position, thus preventing operation of the cutting mechanism.

In addition to affecting the operation of the cutting mechanism, the thickness detector may also be configured to alert the user of the shredder to potential jams. As increasing thicknesses of material are fed into the feed-aperture, the thickness detector may actuate warning lights or noises which indicate a potential jam. These warnings

may indicate binary “problem/no problem” situations or may indicate an incremental increased likelihood of problems.

In some versions of the shredder, the thickness detector is accompanied by a sensor connected to the controller. The controller starts the shredder’s cutting mechanism only when the sensor detects material in the aperture and the thickness detector is in the first position. If a sufficient thickness of material is fed into the aperture to shift the thickness detector to the second position, the controller prevents operation of the cutting mechanism and causes the machine to signal a warning to the operator.

The thickness detector extends from the feed aperture to a switch or a device for detecting movement of the detector. Most versions of the thickness detector position the pivot on which the detector is mounted such that a relatively small movement of the portion of the detector in the feed aperture results in a larger movement at the other end of the detector, the end near the motion detector. Several versions of the thickness detector actuate a switch to prevent operation of the cutting mechanism rather than influencing a motion detector.

The disputed terms in the ‘468 patent relate to the structure, placement, and functioning of the thickness detector and to its interaction with the motor and a controller. The disputed terms listed in the parties’ Markman briefs are as follows:

1. said thickness detector is provided in the form of an elongate arm (claims 1, 5);
2. an elongate arm mounted for pivotal movement (claims 1, 5);
3. the thickness detector permits energization of the cutting mechanism

- (claims 1, 5, 9, 13, 14);
4. the thickness detector prevents energization of the cutting mechanism (claims 1, 5, 9, 13, 14);
  5. the controller is configured to prevent the starting of energization of the cutting mechanism (claims 9, 11);
  6. “the controller is configured to start energization of the cutting mechanism” and “said controller being configured to . . . permit energization of the cutting mechanism” (claims 9, 11);
  7. movement of said part in the feed-aperture amplifies movement of the detectable element at the sensor (claims 10, 12, 13, 14);
  8. pivot axis (claims 2, 3, 4, 6, 7, 8);
  9. substantially adjacent to the feed-aperture (claims 3, 7);
  10. feed-aperture (claims 1, 2, 3, 5, 6, 7, 9, 10, 11, 12, 13);
  11. wherein part of the thickness detector extends into the feed-aperture (claims 1, 5, 9, 13; also claim 11 states “the thickness detector having a part extending into the feed-aperture”);
  12. in response to (claims 9, 11); and
  13. being configured to cause a break in the circuit (claims 2, 6).

See Joint Claim Construction an Prehearing Statement, Doc. No. 49, attachment, pp. 1-6.

Not all of these terms were considered at the Markman hearing. Prior to the hearing, the parties agreed that “feed-aperture” should be construed as “the throat, namely the entire space through which materials being shredded are fed into the cutter

elements.” In addition, some terms were addressed only indirectly at the hearing.

*B. The ‘796 Patent*

The ‘796 patent describes a shredder with a thickness detector that also includes an “anti-flutter” feature. In various embodiments, the shredder detects the thickness of the object or objects being fed into it and performs a variety of functions depending upon whether the detected thickness is above or below a predetermined maximum thickness. Among other functions, the shredder will continue to shred the object or objects if the initial thickness was less than the predetermined maximum, even if the thickness detector subsequently detects a thickness above the predetermined thickness during the operation of the shredder.

All claims in the ‘796 patent describe a shredder having a throat for receiving material to be shredded, an electrically powered motor and cutter elements for affecting the shredding, a thickness detector for detecting the thickness of material fed into the shredder, and a controller. The controller is connected to the thickness detector and the motor. The shredder is designed to prevent jamming as a result of too much material being fed into the shredder and also to avoid halting operations as a result of flutter’s causing false readings that too much material is being fed into the machine.

The thickness detector described in the ‘796 patent is configured to detect, prior to the operation of the motor, whether the thickness of the article being fed into the shredder is above or below a predetermined maximum thickness. If the material is below the predetermined maximum, the controller signals the motor to start, and the machine shreds the material.

In most versions of the shredder, the thickness detector is variable, detecting and

outputting varying amounts of detected thickness. The variable detector is usually configured so as to detect during the operation of the shredder whether the thickness of the material being shredded exceeds a “flutter threshold,” set higher than the predetermined maximum thickness threshold. If the thickness detector initially detects material below the predetermined threshold being fed into the machine but, during the same operation, later detects material above the predetermined threshold, the machine may be configured to do various things. If the material is below the flutter threshold, the motor continues to shred the material. If the material is above the flutter threshold, the controller may stop the motor, may signal the user that the flutter threshold has been exceeded, may indicate to the user the extent to which the flutter threshold has been exceeded, and/or, if the material exceeding the flutter threshold is not withdrawn after a certain time, may restart the motor to continue shredding the material. The controller may also be configured to restart the motor if the material exceeding the flutter threshold is withdrawn. Finally, the variable detector may be configured to detect the rate of change in thickness and to continue operation of the motor if the detected increase in thickness is gradual.

An embodiment of the shredder includes a configuration of the controller which allows it to detect various performance characteristics of the motor. If the controller detects certain performance characteristics, it is designed to reduce the predetermined maximum thickness level and/or the flutter threshold.

The disputed terms in the ‘468 patent relate to the functioning of the thickness detector, the behavior of materials in the shredder, and the monitoring of the motor during operation of the shredder. The disputed terms listed in the parties’ Markman

briefs are as follows:

1. [the controller being configured to determine whether the thickness detector detects that the thickness of the at least one article to be shredded being received by the throat is] below or at or above [a predetermined maximum thickness threshold] (claims 1, 21),

and

[determining whether the thickness detector detects that the thickness of the at least one article to be shredded being received by the throat is] below or at or above [a predetermined maximum thickness threshold]

(claims 1, 21);
2. detects (claims 1,21);
3. without preventing the operation of the motor in the shredding direction in response to the thickness detector detecting during the operation of the motor that the thickness of the at least one article is at or above the predetermined maximum thickness threshold to thereby prevent unnecessary motor shut-off due to flutter of the at least one article being shredded (claims 1, 21);
4. predetermined maximum thickness threshold (claims 1, 21);
5. fluttering (claims 1, 21); and
6. motor operating condition (claims 18, 31).

See Joint Claim Construction and Prehearing Statement at 7-10.

## II. Principles of Claim Construction

The Patent Act of 1870, ch. 230, § 26, 16 Stat. 198, 201 provides that “before

any inventor or discoverer shall receive a patent . . . he shall particularly point out and distinctly claim the part, improvement, or combination which he claims as his invention or discovery. . . ." Title 35 U.S.C. § 112 describes the general method of specification and claiming by which this process proceeds:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

A claim may be written in independent or, if the nature of the case admits, in dependent or multiple dependent form. . . . a claim in dependent form shall contain a reference to a claim previously set forth and then specify a further limitation of the subject matter claimed. A claim in dependent form shall be construed to incorporate by reference all the limitations of the claim to which it refers.

The specification, therefore, tells a person skilled in the relevant art what the invention is and how to make and use it, while the claims delineate the matter over which the patentee asserts a right of exclusivity. "It is a 'bedrock principle' of patent law that 'the claims of a patent define the invention to which the patentee is entitled the right to exclude.'" *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (quoting *Innova/Pure Water, Inc. v. Safari Water Filtration Systems, Inc.*, 381 F.3d 1111, 1115 (Fed. Cir. 2004)).

Claim construction is a question of law. *Loctite Corp. v. Ultraseal Ltd.*, 781 F.2d 861, 866 (Fed. Cir. 1985). "The task of claim construction requires us to examine all the relevant sources of meaning in the patent record with great care, the better to guarantee

that we determine the claim's true meaning." *Athletic Alternatives, Inc. v. Prince Mfg., Inc.*, 73 F.3d 1573, 1578 (1996). Claim interpretation proceeds under the guidelines most recently set forth in *Phillips*, 415 F.3d 1303, following *Markman v. Westview Instruments, Inc.*, 517 U.S. 370 (1996); *Innova*, 381 F.3d 1111; *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576 (Fed. Cir. 1996); and *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995).

"In determining the proper construction of a claim, 'the court should look first to the intrinsic evidence of record, i.e., the patent itself, including the claims, the specification, and if in evidence, the prosecution history.' " *CVI/Beta Ventures, Inc. v. Tura LP*, 112 F.3d 1146, 1152 (Fed. Cir. 1997) (quoting *Vitronics* , 90 F.3d at 1582). This is done "to ascertain the true meaning or effect in the claims of . . . the claim limitation." *Amhil Enterprises, Ltd. v. Wawa, Inc.*, 81 F.3d 1554, 1559 (Fed. Cir. 1996). Such intrinsic evidence is "the most significant source of the legally operative meaning of claim language." *Vitronics*, 90 F.3d at 1582. Extrinsic evidence (e.g., expert testimony) also may be used in claim construction. *Id.* However, when "an analysis of the intrinsic evidence alone will resolve any ambiguity in a disputed claim term," it is improper to rely on extrinsic evidence. *Id.* at 1583.

#### A. *Intrinsic Evidence*

##### 1. *The terms used in a patent*

The terms in a claim are given their ordinary meaning to one of skill in the art unless it appears from the patent and file history that the terms were used differently by the inventors. *Envirotech Corp. v. Al George, Inc.*, 730 F.2d 753, 759 (Fed. Cir. 1984); see also *Phillips*, 415 F.3d at 1313 ("[T]he ordinary and customary meaning of a claim

term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, *i.e.*, as of the effective filing date of the patent application.”) (italics added). “[T]he person of ordinary skill in the art is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification.” *Phillips*, 415 F.3d at 1313. Moreover,

[b]ecause the meaning of a claim term as understood by persons of skill in the art is often not immediately apparent, and because patentees frequently use terms idiosyncratically, the court looks to “those sources available to the public that show what a person of skill in the art would have understood disputed claim language to mean.” *Innova*, 381 F.3d at 1116. Those sources include “the words of the claims themselves, the remainder of the specification, the prosecution history, and extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art.” *Id.*

*Phillips*, 415 F.3d at 1314 (citations omitted). “[C]laim terms are normally used consistently throughout the patent . . . .” *Id.* at 1314.

The first step in constructing a claim is to “look to the words of the claims themselves, both asserted and nonasserted, to define the scope of the patented invention. *Vitronics Corp. c. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996). (citing *Bell Communications Research, Inc. v. Vitalink Communications Corp.*, 55 F.3d 615, 620 (Fed. Cir. 1995)). The claim language itself defines the scope of the claim. See *York Prods., Inc. v. Central Tractor Farm & Family Center*, 99 F.3d 1568, 1572 (Fed. Cir. 1996). Moreover, the description in the specification “may act as a sort of dictionary, which explains the invention and may define terms used in the claims.” *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979-80 (Fed. Cir. 1995). “[T]he specification is always highly relevant to the claim construction analysis. Usually, it is

dispositive; it is the single best guide to the meaning of a disputed term.” *Vitronics*, 90 F.3d at 1582. In addition, a court may rely on general and technical dictionaries to determine the meaning of technical and other terms. *Hoechst Celanese Corp. v. BP Chemicals Ltd.*, 78 F.3d 1575, 1580 (Fed. Cir. 1996). A “general dictionary definition is secondary to the specific meaning of a technical term as it is used and understood in a particular technical field.” *Id.*; see also *Hormone Research Found., Inc. v. Genentech, Inc.*, 904 F.2d 1558, 1563 (Fed. Cir. 1990).

## 2. *The claims themselves*

Once the meaning of the terms in the patent is understood, the court must construe the claims. “A claim in a patent provides the metes and bounds of the right which the patent confers on the patentee to exclude others from making, using, or selling the protected invention.” *Corning Glass Works v. Sumitomo Electric U.S.A., Inc.*, 868 F.2d 1251, 1257 (Fed. Cir. 1989). “The scope of letters-patent must be limited to the invention covered by the claim, and while the claim may be illustrated it cannot be enlarged by language used in other parts of the specification.” *Yale Lock Mfg. Co. v. Greenleaf*, 117 U.S. 554, 559 (1886). According to *Autogiro Co. of America v. United States*, 384 F.2d 391 (Ct. Cl. 1967):

The claims of the patent provide the concise formal definition of the invention. They are the numbered paragraphs which “particularly [point] out and distinctly [claim] the subject matter which the applicant regards as his invention.” 35 U.S.C. § 112. It is to these wordings that one must look to determine whether there has been infringement.

*Autogiro*, 384 F.2d at 395-96. The words “of a claim describe and point out the invention by a series of limiting words or phrases (limitations). In the determination of infringement, the words of the claim must first be interpreted and, as properly

interpreted, they must be 'read on' the accused structure to determine whether each of the limitations recited in the claim is present in the accused structure." *Corning Glass*, 868 F.2d at 1258 (citations omitted).

Claims are not entirely independent of one another. "Significant evidence of the scope of a particular claim can be found on review of other claims." *Fromson v. Advance Offset Plate, Inc.*, 720 F.2d 1565, 1570 (1983). However, "where some claims are broad and others narrow, the narrow claim limitations cannot be read into the broad whether to avoid invalidity or to escape infringement." *Id.* (citing *Kalman v. Kimberly-Clark Corp.*, 713 F.2d 760, 770, 218 USPQ 781, 788 (Fed. Cir. 1983)); accord, *Environmental Designs, Ltd. v. Union Oil Co. of California*, 713 F.2d 693, 699 (Fed. Cir. 1983); *Caterpillar Tractor Co. v. Berco, S.P.A.*, 714 F.2d 1110, 1115 (Fed. Cir. 1983).

### 3. *The specification*

The third step in construing a claim is to look to the specification. Although "references to a preferred embodiment, such as those often present in a specification, are not claim limitations, we look to the specification for assistance in construing a claim." *Lockwood v. American Airlines, Inc.*, 107 F.3d 1565, 1575 (Fed. Cir. 1997) (quoting *Laitram Corp. v. Cambridge Wire Cloth Co.*, 863 F.2d 855, 865 (Fed. Cir. 1988), and *Carroll Touch, Inc. v. Electro Mechanical Sys., Inc.*, 15 F.3d 1573, 1577 (Fed. Cir. 1993)). However, "[w]here a specification does not require a limitation, that limitation should not be read from the specification into the claims." *Specialty Composites v. Cabot Corp.*, 845 F.2d 981, 987 (Fed. Cir. 1988) (citing *Lemelson v. United States*, 752 F.2d 1538, 1551-52 (Fed. Cir. 1985)). For the most part, "particular embodiments and examples appearing in the specification will not generally be read into

the claims.” *Constant v. Advanced Micro-Devices, Inc.*, 848 F.2d 1560, 1571 (Fed. Cir. 1988); see also *Loctite Corp. v. Ultraseal Ltd.*, 781 F.2d 861, 867 (Fed. Cir. 1985); *SRI Int'l v. Matsushita Elec. Corp. of Am.*, 775 F.2d 1107, 1121 (Fed. Cir. 1985) (in banc); *D.M.I., Inc. v. Deere & Co.*, 755 F.2d 1570, 1574 (Fed. Cir. 1985); *Fromson v. Advance Offset Plate, Inc.*, 720 F.2d 1565, 1568 (Fed. Cir. 1983); *Arshal v. United States*, 621 F.2d 421, 428 (Ct. Cl. 1980). “A preferred embodiment . . . is just that, and the scope of a patentee's claims is not necessarily or automatically limited to the preferred embodiment.” *Amhil*, 81 F.3d at 1559.

“When a limitation is included in several claims but is stated in terms of apparently different scope, there is a presumption that a difference in scope is intended and is real.” *Modine Mfg. Co. v. United States Int'l Trade Comm'n*, 75 F.3d 1545, 1551 (Fed. Cir. 1996); see also *Tandon Corp. v. United States Int'l Trade Comm'n*, 831 F.2d 1017, 1023 (Fed. Cir. 1987). Such a presumption can be overcome only by clear and persuasive evidence. “Conversely, it is incorrect to construe a claim as encompassing the scope that was relinquished in order to obtain allowance of another claim, despite a difference in the words used.” *Modine Mfg.*, 75 F.3d at 1551; see also *Builders Concrete, Inc. v. Bremerton Concrete Prods. Co.*, 757 F.2d 255, 260 (Fed. Cir. 1985).

“However, when the preferred embodiment is described in the specification as the invention itself, the claims are not necessarily entitled to a scope broader than that embodiment.” *Modine Mfg.*, 75 F.3d at 1551; see also *Autogiro Co. of America v. United States*, 384 F.2d 391, 398 (1967) (“where the patentee describes an embodiment as being the invention itself and not only one way of utilizing it,” this description guides understanding the scope of the claims).

4. *The prosecution history*

A court should look at the prosecution history of the patent in constructing a claim, if that history is in evidence. *Graham v. John Deere*, 383 U.S. 1, 33 (1966); *Vitronics*, 90 F.3d at 1582; *SSI/H Equip. S.A. v. United States Int'l Trade Comm'n*, 718 F.2d 365, 376 (Fed. Cir. 1983) (prosecution history "is always relevant to a proper interpretation of a claim"). The prosecution history

contains the complete record of all the proceedings before the Patent and Trademark Office, including any express representations made by the applicant regarding the scope of the claims. As such, the record before the Patent and Trademark Office is often of critical significance in determining the meaning of the claims.

*Vitronics*, 90 F.3d at 1582; see also *Markman*, 52 F.3d at 980; *Southwall Tech., Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1576 (Fed. Cir. 1995) ("The prosecution history limits the interpretation of claim terms so as to exclude any interpretation that was disclaimed during prosecution.") (citations omitted). "[A]rguments made during prosecution regarding the meaning of a claim term are relevant to the interpretation of that term in every claim of the patent absent a clear indication to the contrary." *CVI/Beta*, 112 F.3d at 1153 (quoting *Southwall Techs. Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1579 (Fed. Cir.), *cert. denied*, --- U.S. ----, 116 S.Ct. 515 (1995)).

Although the prosecution history can and should be used to understand the language used in the claims, it too cannot "enlarge, diminish, or vary" the limitations in the claims. *Markman*, 52 F.3d at 980 (quoting *Goodyear Dental Vulcanite*, 102 U.S. at 227). The prosecution history "limits the interpretation of claim terms so as to exclude any interpretation that was disclaimed during prosecution." *CVI/Beta*, 112 F.3d at 1153 (quoting *Southwall Techs.*, 54 F.3d at 1579).

B. *Extrinsic evidence*

Where “the dispositive claim language on its face is susceptible to two equally plausible meanings” such that “the scope of [a claim] cannot be defined by resort to the ordinary and accustomed meanings of its terms alone,” and where the specification does not resolve the equivocality, the court may resort to extrinsic evidence to construct the claim. *Athletic Alternatives*, 73 F.3d at 1579. The court may look to a variety of sources for extrinsic evidence:

Extrinsic evidence consists of all evidence external to the patent and prosecution history, including expert and inventor testimony, dictionaries, and learned treatises. This evidence may be helpful to explain scientific principles, the meaning of technical terms, and terms of art that appear in the patent and prosecution history. Extrinsic evidence may demonstrate the state of the prior art at the time of the invention. It is useful "to show what was then old, to distinguish what was new, and to aid the court in the construction of the patent."

*Markman*, 52 F.3d at 980 (quoting *Brown v. Piper*, 91 U.S. 37, 41 (1875)). Further, “[t]he court may, in its discretion, receive extrinsic evidence in order "to aid the court in coming to a correct conclusion" as to the "true meaning of the language employed" in the patent. *Id.* (quoting *Seymour v. Osborne*, 78 U.S. (11 Wall.) 516, (1871)).

“Extrinsic evidence is to be used for the court's understanding of the patent, not for the purpose of varying or contradicting the terms of the claims.” *Markman*, 52 F.3d at 981. “When, after considering the extrinsic evidence, the court finally arrives at an understanding of the language as used in the patent and prosecution history, the court must then pronounce as a matter of law the meaning of that language.” *Id.* The process of using extrinsic evidence to interpret claims is a matter of law. *Id.*

### III. Construing the ‘468 Patent

The court recommends the following constructions for the reasons provided

below. The terms and constructions are arranged in two groups, one group consisting of terms and constructions related to the structure and positioning of the thickness detector and the other related to the manner in which the thickness detector affects the operation of the cutting mechanism.

A. *Terms and constructions related to the structure and positioning of the thickness detector*

1. ***Term 1:*** *said thickness detector is provided in the form of an elongate arm (claims 1, 5)*

Plaintiff proposes “the thickness detector is an arm that is longer than it is wide” as the preferred construction. Defendant proposes “the thickness detector includes a slender arm” as the preferred construction. Neither proposal is satisfactory for a variety of reasons. The primary problem with plaintiff’s proposal is that it does not describe the arm depicted in Figs. 8 and 11 of the patent, since it is by no means clear that the arm depicted in those figures is longer than it is wide (to the extent that either term is properly applied to Fig. 8). Defendant’s proposed construction is even more problematic, since the arm depicted in Figs. 8 and 11 is by no means “slender.” Moreover, the claim term asserts that the detector *is in the form of* an elongate arm, whereas defendant’s construction merely asserts that the thickness detector *includes* a slender arm.<sup>1</sup>

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<sup>1</sup> Defendant argues that the thickness detector includes more than the “elongate arm.” According to defendant, an optical sensor, a “contact member” extending into the feed-aperture, and an elongate portion extending away from the feed-aperture are additional parts of the thickness detector. Neither the claims nor the specification supports such a construction. Only some of the embodiments of the thickness detector include an optical sensor. Such a sensor is not, therefore, a integral or necessary part of the thickness detector. The “contact member” and “elongate portion” to which defendant refers are merely sections of the “elongate arm,” not features of the thickness detector *in addition*

The term “elongate” in the claim is not a purely structural description of the arm, since the term does not aptly describe the shapes depicted in Figs. 8 and 11. Rather, the term must be construed as referring to the necessity that the arm be sufficiently extended to communicate motion from articles in the feed-aperture to the switch or motion detector within the shredder housing. Thus, the term “elongate” refers, at least in part, to the shape of the arm as a *functional* element of the shredder mechanism, i.e., sufficiently extended to accomplish the arm’s task. For this reason, a construction of the term must describe a structure designed to accomplish the arm’s function.

**Recommended construction:** said thickness detector is provided in the form of an arm extending from the feed aperture to a switch or a device for detecting movement of the arm.

2. ***Term 2: an elongate arm mounted for pivotal movement (claims 1, 5)***

Plaintiff proposes “an arm longer than it is wide attached to a point and configured for turning about that point” as the preferred construction. Defendant proposes “an elongated arm attached in a manner to allow rotation around a central point” as the preferred construction. Plaintiff’s proposal is unsatisfactory because, as already noted, some of the depictions of the arm cannot aptly be described as “longer than it is wide.” It is also unsatisfactory because the proposed construction could fairly describe an arm fixed at one end but sufficiently flexible to bend back and forth at the fixed end. The arm in such an embodiment would not engage in “pivotal movement.”

Defendant’s proposal as stated is unsatisfactory because the term “central” is

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to the elongate arm.

ambiguous, since it could refer to the center of the elongated arm or the center of rotation. If the term “central” refers to the center of the arm, then the term “central” is problematic. The pivot on which the arm turns *cannot* be centrally located if a relatively small movement at one end is to be translated into a larger movement at the other end (see Term 7 below). If “central” refers to the “center of rotation,” then it is redundant, since all rotation is around some center point. “Fixed” point is better because it avoids ambiguity and inaccuracy or redundancy. Thus, defendant’s construction is adopted, but the term, “central,” must be abandoned as ambiguous.

**Recommended construction:** an elongated arm attached in a manner to allow rotation around a fixed point.

3.     ***Term 11: wherein part of the thickness detector extends into the feed-aperture (claims 1, 5, 9, 13; also claim 11 states “the thickness detector having a part extending into the feed-aperture”)***

Plaintiff asserts that no construction is necessary. Defendant proposes “part of the thickness detector is located in and another part is located outside the feed-aperture” as the preferred construction. The term is already reasonably clear, particularly in the variation found in claim 11. For this reason, the court agrees with plaintiff that no construction is necessary.

**Recommended construction:** no construction necessary.

4.     ***Term 7: movement of said part in the feed-aperture amplifies movement of the detectable element at the sensor (claims 10, 12, 13, 14)***

Plaintiff asserts that no construction is necessary. Defendant proposes “movement of the portion of the thickness detector in the feed-aperture results in increased movement of the detectable element at the sensor” as the recommended

construction. Defendant's construction makes the described operation of the thickness detector somewhat easier to understand. For this reason, the court should adopt defendant's proposed construction.

**Recommended construction:** movement of the portion of the thickness detector in the feed-aperture results in increased movement of the detectable element at the sensor.

5. **Term 8:** pivot axis (claims 2, 3, 4, 6, 7, 8).

Plaintiff asserts that no construction is necessary. Defendant proposes "central point around which rotation occurs" as the recommended construction. Defendant's proposed construction again uses the problematic word "central." As already discussed, the term "central" is ambiguous in this context. Again, substituting the word "fixed" for central eliminates the ambiguity. The term "pivot axis" is straightforward and easily understandable by the average person. Thus, either no construction is necessary or defendant's construction should be adopted with the substitution of "fixed" for "central."

**Recommended construction:** no construction necessary or, alternatively, "fixed point around which rotation occurs."

6. **Term 9:** *substantially adjacent to the feed-aperture* (claims 3, 7)

Plaintiff asserts that no construction is necessary. Defendant proposes "close to, next to, or beside the feed aperture, but not in the feed-aperture" as the recommended construction. Defendant's proposed construction uses simpler language than the original and is equally accurate. The court should, therefore, adopt defendant's

recommended construction.

**Recommended construction:** close to, next to, or beside the feed aperture, but not in the feed-aperture.

7. ***Term 10: feed-aperture (claims 1, 2, 3, 5, 6, 7, 9, 10, 11, 12, 13)***

**Recommended construction** [by agreement of the parties]: the throat, namely the entire space through which materials being shredded are fed into the cutter elements.

B. *Terms and constructions related to the manner in which the thickness detector affects the operation of the cutting mechanism*

Terms 3, 4, 5, and 6 are so closely related that they should be considered together. Some discussion is necessary before proceeding to recommended constructions for these terms:

**Term 3:** the thickness detector permits energization of the cutting mechanism (claims 1, 5, 9, 13, 14).

**Term 4:** the thickness detector prevents energization of the cutting mechanism (claims 1, 5, 9, 13, 14);

**Term 5:** the controller is configured to prevent the starting of energization of the cutting mechanism (claims 9, 11);

**Term 6:** “the controller is configured to start energization of the cutting mechanism” and “said controller being configured to . . . permit energization of the cutting mechanism” (claims 9, 11);

Five descriptions in the specification are relevant to the manner in which the thickness detector and controller affect the energization of the cutting mechanism: (1) col. 9, Ins.

8-9: "the detector **100** may be in communication with the motor **18** . . . via the controller **200** . . . [T]he controller **200** may control whether power is provided to the motor"; (2) col. 9, Ins. 11-14: "if the thickness of the item to be shredded is detected to be greater than the capacity of the shredder mechanism **16**, power will not be provided to the shredder mechanism"; (3) col. 9, Ins. 45-48: "If the detected thickness is greater than the predetermined maximum thickness, the controller **200** may . . . prevent power from powering the motor"; (4) col. 10, Ins. 48-53: "because the detector **100** is also in communication with the controller **200**, if the detector **100** detects that the thickness of the article that has entered the throat is too thick for the capacity of the shredder mechanism **16**, the shredder mechanism **16** may not operate, even though the sensor **150** has indicated that it is time for the shredder mechanism **16** to operate"; and (5) col. 12, 12-16: "if the controller **200** determines that the thickness that has been detected is less than the predetermined maximum thickness, the controller **200** . . . allows power to be supplied to the shredder mechanism **16** so that the shredder **10** may proceed with shredding the item . . ."

Defendant argues that the patent teaches that the thickness detector controls the shredding mechanism both directly and indirectly. Defendant's argument in this respect is set forth below:

Fellowes' construction of allowing for indirect control of the electrical operation of the shredder mechanism (*i.e.*, indirectly preventing or permitting electrical operation) is further supported by claim 9, wherein, for example, the thickness detector permits and the controller starts energization of the cutting mechanism if the sheet material is less than a predetermined thickness.

But Plaintiffs improperly seek to narrow the meaning of the terms, limiting both the thickness detector and the controller to *directly* permit or prevent or start the flow of electricity to the cutting mechanism. Plaintiff's proposed construction

that the thickness detector “permits or prevents the flow of the electricity to the cutting mechanism,” suggesting that direct control is required, improperly narrows the control of the thickness detector because that construction does not allow for the indirect control of the shredder mechanism. The same is true for the controller. The claims call for the thickness detector to “permit and/or prevent” and the controller to “start” and/or “prevent the starting of” energization of the cutting mechanism. There is no support in the specification for Plaintiffs’ [sic] limitation that they try to read in to the claim, because the the thickness detector (or controller) may prevent or permit (or start) energization directly or indirectly as detailed in FIG. 6.

Defendant’s Opening Claim Construction Brief, Doc. No. 46, pp. 14-15.

Defendant’s argument takes a false path that cannot be reconciled with the patent. There are two problems with defendant’s argument. First, defendant’s claim that “permits” or “prevents,” by itself, is incorrect flies in the face of the plain language of the claims. Claims 1, 5, 9, 13, 14 state that “the thickness detector permits energization of the cutting mechanism” and “the thickness detector prevents energization of the cutting mechanism.” Defendant has no ground to object to plaintiff’s proposed construction because it “permits or prevents” energization of the cutting mechanism: Permitting and preventing are what the claims teach in those words.

Second, defendant’s argument improperly introduces the notions of “direct” versus “indirect” control, concepts not found in the language of the claims, not supported by any accompanying figure, and not justified by analysis of the relationships between the thickness detector, sensor, controller, and shredding mechanism. Indeed, because neither “direct” nor “indirect” control appear anywhere in the patent, what defendant means by “direct” versus “indirect” control is not entirely clear. In the system taught by the patent, a thickness detector, and sometimes a sensor, send signals to a controller. If the thickness detector signals that predetermined thickness levels are not

being exceeded and if the sensor, if any, signals that one or more items are in the feed-aperture, the controller “starts energization” of the shredder mechanism.<sup>2</sup> However, both the thickness detector and the sensor, if any, have a veto over the operation of the shredder mechanism. If either device signals that conditions do not support operation of the shredder mechanism, because predetermined thickness levels have been exceeded or because there is no material in the feed-aperture, then the shredder mechanism is prevented from operating because “the controller is configured to prevent the starting of energization of the cutting mechanism.” In such a system, assertions regarding “direct” versus “indirect” control are neither necessary nor helpful. For these reasons, defendant’s distinctions between direct and indirect control should be rejected.

Both parties implicitly agree that “energization” should be rephrased in terms of electricity. Plaintiff refers to “the flow of electricity,” while defendant refers to “electrical operation.” As all independent claims in the patent teach an “electric cutting mechanism,” “energization of the cutting mechanism” necessarily entails a flow of electricity to the cutting mechanism or the electrical operation of the cutting mechanism.

Having rejected defendant’s characterization of the control system described in the patent as entailing “direct or indirect” control, the court turns to the proposed constructions for terms 3, 4, 5, and 6:

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<sup>2</sup> It should be noted that this presupposes that the switch, see Fig. 1 no. 42, is in the “on” position. In that position, “contacts in the switch module are closed by movement of the manually engageable portion **46** and the movable element to enable a delivery of electrical power to the motor **18**.” Col. 4, Ins. 48-50. Note that turning the switch to “on” merely “enables” delivery of power rather than “causes” or “ensures” delivery of power. Thus, turning the switch to “on” does not, by itself, result in the operation of the shredder mechanism.

1. ***Term 3: the thickness detector permits energization of the cutting mechanism (claims 1, 5, 9, 13, 14)***

Plaintiff proposes “the thickness detector permits the flow of electricity to the cutting mechanism” as the recommended construction. Defendant proposes “does not prevent, i.e. does not directly or indirectly impede electrical operation.” As discussed, plaintiff’s proposed construction is easily understood and authorized by the plain language of the patent. Defendant’s proposed construction introduces concepts not found in the patent and not helpful to understanding it. Accuracy argues for plaintiff’s proposed construction.

**Recommended construction:** the thickness detector permits the flow of electricity to the cutting mechanism.

2. ***Term 4: the thickness detector prevents energization of the cutting mechanism (claims 1, 5, 9, 13, 14)***

Plaintiff proposes “the thickness detector prevents the flow of electricity to the cutting mechanism” as the recommended construction. Defendant proposes “directly or indirectly impedes electrical operation.” For the reasons described above, plaintiff’s proposed construction is recommended as simple and authorized by the plain meaning of the patent, while defendant’s introduces concepts not justified by the patent.

**Recommended construction:** the thickness detector prevents the flow of electricity to the cutting mechanism.

3. ***Term 5: “the controller is configured to prevent the starting of energization of the cutting mechanism” (claims 9, 11) and “said controller being configured to . . . prevent energization of the cutting mechanism” (claim 14)***

Plaintiff proposes “the controller is configured to prevent the flow of electricity to

the cutting mechanism” as the recommended construction. That construction, for the reasons described above, is both simple and authorized by the plain meaning of the patent.

**Recommended construction:** the controller is configured to prevent the flow of electricity to the cutting mechanism.

4. **Term 6:** “*the controller is configured to start energization of the cutting mechanism*” (claims 9, 11) and “*said controller being configured to . . . permit energization of the cutting mechanism*” (claim 14)

Plaintiff proposes “the controller is configured to send electricity to the cutting mechanism” and “the controller is configured to permit . . . the flow of electricity to the cutting mechanism” as the recommended constructions. Defendant proposes that the controller “directly or indirectly initiates the electrical operation of the cutting mechanism.” For the reasons described above, plaintiff’s proposed construction is simple and authorized by the plain meaning of the patent.

**Recommended constructions:** “the controller is configured to send electricity to the cutting mechanism” and “the controller is configured to permit the flow of electricity to the cutting mechanism.”

5. **Term 12:** *in response to* (claims 9, 11)

The phrase appears in the following context: “[T]he controller is configured to start energization of the cutting mechanism only in response to the presence sensor detecting the presence of the sheet material inserted into the feed aperture . . . .” Plaintiff contends that no construction is necessary. Defendant proposes “based on or as a result of.” “[O]nly in response to” indicates that the condition precedent is both a

necessary and a sufficient condition for the result. The phrase is also clear and simple. “Only based on” obscures the exact relationship between the condition and the result. “Only as a result of” is an alternative, clear expression of the relationship between the controller’s energization of the cutting mechanism and the presence material in the feed aperture. As “in response to” is simple and clear, no construction is necessary. Alternatively, “as a result of” might be used.

**Recommended construction:** no construction necessary or, alternatively, “as a result of.”

6. ***Term 13: being configured to cause a break in the circuit (claims 2, 6)***

The phrase appears in the following context: “[S]aid thickness detector is arranged to actuate a switch when in said second position, the switch being configured to cause a break in the circuit providing power to the cutting mechanism . . . .” Plaintiff contends that no construction is necessary. Defendant proposes “designed to directly or indirectly impede electrical operation.” Again, “directly or indirectly” introduces concepts not found in the patent. Defendant’s construction, therefore, should be rejected. In addition, the language of the patent is sufficiently clear and unequivocal to preclude construction.

**Recommended construction:** no construction necessary.

#### IV. Construing the ‘796 Patent

The court recommends the following constructions for the reasons provided below.

1. ***Term 1: below or at or above (claims 1, 21)***

The phrase appears in the following contexts: “the controller being configured to determine whether the thickness detector detects that the thickness of the at least one article to be shredded being received by the throat is below or at or above a predetermined maximum thickness threshold . . .” and “determining whether the thickness detector detects that the thickness of the at least one article to be shredded being received by the throat is below or at or above a predetermined maximum thickness threshold . . .” Plaintiff proposes the following constructions: (1) “The controller being configured to determine . . . whether the thickness detector measures that the thickness of the at least one article to be shredded meets one of (1) *below or* (2) *at or* (3) *above* a predetermined maximum thickness threshold” and (2) “Determining whether the thickness detector measures that the thickness of the at least one article to be shredded meets one of (1) *below or* (2) *at or* (3) *above* a predetermined maximum thickness threshold.” Defendant proposes the following constructions: (1) “either less than [a predetermined maximum thickness threshold] or alternatively greater than or equal to [a predetermined maximum thickness threshold]” and (2) “either less than a [predetermined maximum thickness threshold] or alternatively greater than or equal to [a predetermined maximum thickness threshold].” The fundamental difference in the two constructions is whether the thickness detector is conceived as distinguishing three conditions (1. below, 2. at, and 3. above) or two conditions (1. below and 2. at or above).

The patent distinguishes between only two conditions: less than a maximum thickness threshold or at or above a maximum thickness threshold. **References to a**

**condition less than the maximum thickness threshold** are the following: abstract [“less than a predetermined maximum thickness threshold”]; col. 2, Ins. 11-12, 34-35, 53-54 [“less than a predetermined maximum thickness threshold”]; col. 14, ln. 59; col. 8, Ins. 8-9 [“below a first predetermined thickness”], ln. 14 [“below a second predetermined thickness”], Ins. 58-59 [“below the predetermined maximum thickness threshold”]; col. 11, Ins. 29-30 [“less than the predetermined maximum thickness threshold”]; col. 14., Ins.4-5, 9-10 [“less than the predetermined maximum thickness threshold”], 59-60 [“below the maximum thickness threshold”]; and col. 16, Ins. 41-42 [“below the predetermined maximum thickness threshold”]. **References to a condition at or above the maximum thickness threshold** are as follows: col. 14, Ins. 54, 64-65; col. 8, ln. 8 [“at or above the first predetermined thickness”], Ins. 17-19 [“at or above a corresponding number of predetermined thicknesses”], ln. 17 [“at or above the second predetermined thickness”], Ins. 66-67 [“equal to or exceeds the predetermined maximum thickness threshold”]; col. 11, Ins. 15-17 [“At 318, the controller 200 determines whether the thickness that has been detected is at least a predetermined maximum thickness threshold.”], Ins. 21-22 [“at least a predetermined maximum thickness threshold”]; col. 14, Ins. 52-55 [“prevent the operation of the motor if the thickness detector detects that the at least one article to be shredded . . . is at or above the predetermined maximum thickness threshold”], Ins. 64-65 [“at or above the predetermined maximum thickness threshold”]; col. 15, Ins. 29-30, 46-47 [“at or above the predetermined maximum thickness threshold”]; col. 16, Ins. 46-47 [“at or above the maximum thickness threshold”].

There are three **references in the patent to a condition above but not at the maximum thickness threshold:** col. 6, Ins. 39-41 (“too thick for the capacity of the shredder mechanism **16** (i.e., above a predetermined maximum thickness threshold”); col. 7, Ins. 49-50 (“Upon determining that the document(s) inserted exceed the predetermined maximum thickness threshold”); col. 11, Ins. 16-17, 43-44 (“this may exceed the predetermined maximum thickness threshold”).<sup>3</sup> These references occur exclusively in functional descriptions of the patent (i.e., general descriptions of how the patented device functions). References to either a condition below the maximum thickness threshold or at or above that threshold occur in both functional and operational descriptions of the patent, but all operational descriptions of the patent (i.e., detailed descriptions of the processes by which the patented device operates) refer exclusively to either a condition below the maximum thickness threshold or to a condition at or above that threshold. Moreover, no descriptions of a condition above but not at the maximum thickness threshold occur in the claims themselves. Finally, there are **no references in the patent to a condition at but not above the maximum thickness threshold.**

Four other references in the patent help clarify the number of conditions

<sup>3</sup> When describing the setting of the flutter threshold, the patent references the flutter threshold as above, but not at, the maximum thickness threshold. See abstract (“greater than the maximum thickness threshold”); col. 2, ln. 18, 60-61, col. 3, Ins. 8-9 (“higher than the predetermined maximum thickness threshold”); col. 11, Ins. 36-37, 50-51 (“higher than the predetermined maximum thickness threshold”); col. 15, ln. 13-14 (“set the flutter threshold higher than the predetermined maximum thickness threshold”); col. 16, Ins. 62-64 (“the flutter threshold being higher than the predetermined maximum thickness threshold”), Ins. 65-67 (“the flutter threshold is set higher than the predetermined thickness threshold”). These are purely positional references, however, not references to conditions distinguished by the thickness detector.

distinguished by the thickness detector: col. 8, lns. 38-41 [“A red (or other color) light may be used at the end of the sequence of lights to emphasize that the predetermined maximum thickness threshold has been reached or exceeded . . . .”], 44-47 [“These alert features may be used in lieu of or in conjunction with cutting off power to the shredder mechanism upon detecting that the predetermined maximum thickness threshold has been reached or exceeded.”]; col. 8, ln. 65 to col. 9, ln. 3 [“If the detected thickness is equal to or exceeds the predetermined maximum thickness threshold, the series of “beeps” may be continuous, thereby indicating to the user that such a threshold has been met and that the thickness of the article to be shredded should be reduced.”]; col. 11, lns. 20-25 [“If the controller **200** determines that the thickness that has been detected is at least the predetermined maximum thickness threshold, . . . the motor stays off . . . and . . . may also actuate an indicator to alert the user that the article is too thick.”].

In sum, when detailing the operations of the patented device, the thickness detector is always described as distinguishing between just two thicknesses: (1) less than the maximum thickness threshold or (2) at or above the maximum thickness threshold. In addition, the claims themselves distinguish only between conditions (1) less than the maximum thickness threshold or (2) at or above the maximum thickness threshold. Consequently, plaintiff’s proposed construction is not authorized by the language of the patent.

**Recommended construction:** either (1) less than or, alternatively, (2) greater than or equal to.

2. **Term 2: detects (claims 1, 21)**

Plaintiff proposes “measures” as the recommended construction. Defendant contends that no construction is necessary. Plaintiff argues as follows:

Claims 1 and 2 both use the term “detects” with reference to an action by the thickness detector. Specifically, “the thickness detector **detects** that the at least one article to be shredded being received by the throat is below or at or above a predetermined maximum thickness threshold.” (‘796 patent, col. 14, ln. 47-50 and col. 16, ln. 33- 37, respectively) (emphasis added).

Within the ‘796 patent, the terms “detects” and “measures” are used synonymously when referring to the thickness of the at least one article inserted into the throat of the shredder during the shredding operation.

The **measured** or **detected** thickness of the fluttering article may be more than the actual thickness of the at least one article, as the thickness detector may be moved by the flutter of the article. This may exceed the predetermined maximum thickness threshold, and unnecessarily cause the controller 200 to shut off the motor 18 assuming that the **measured thickness** is same [sic] as the actual thickness.

(‘796 patent, col. 11, ln. 40-47) (emphasis added). Here, it is plain that “detected thickness” is the same as the “measured thickness.” Still further, the controller shuts off the motor assuming that the “measured thickness,” which is detected by the thickness detector, exceeds a maximum thickness threshold.

The ‘796 patent teaches that the maximum thickness threshold may be set at different numerical thicknesses, e.g. 1.5 mm for compact discs or 1.8 mm for paper. (‘796 patent, col. 9, ln. 41-50). In order for the controller to evaluate or determine whether the thickness of the article to be shredded exceeds the predetermined maximum thickness threshold, the thickness detector must first measure, or determine a value for, the thickness of that article. Then, the comparison between the measured thickness value and the predetermined maximum thickness threshold can be made. While the patent uses “detects” synonymously with “measures,” that is not the everyday meaning of the word. One *measures* values such as thickness, height and volume. Therefore, in order to make the term understandable to a lay jury, “detects” should be construed as “measures.”

Plaintiffs’ Opening Claim Construction Brief, Doc. No. 45, pp. 16-17.

Defendant responds with three arguments. First, defendant contends that merely using numerical values for varying thresholds of increasing thickness as exemplars of

how those thresholds may be set does not necessarily mean that detecting whether any threshold is reached constitutes a measurement. Moreover, according to defendant, the numerical exemplars cited by plaintiffs come from a preferred embodiment described in the specification. To import such a limitation into claim one, from which the embodiment depends, would improperly limit the claim to a preferred embodiment in claim two. Second, defendant asserts that the side-by-side use of “measures” and “detects” at col. 11, ln. 40-47 does not indicate that the two terms should be understood as synonyms, but rather indicates that the two terms are complementary. Defendant contends that “determines” would be a proper synonym for “detects” in this context. Third, and following from the previous argument, defendants argue that “detects” has a broader meaning than “measures,” referring to uses of “detects” in the patent when the presence of an object is noted without gauging its thickness.

Plaintiffs reply that construing “detects” to mean “measures” would not limit claim one to a preferred embodiment in claim two because claim two would still include an “outputting” function that is not present in claim one.

Neither side offers a definition of “measures.” A relevant definition follows: “to ascertain the quantity, mass, extent, or degree in terms of a standard unit or a fixed amount usu. by means of an instrument or container marked off in the units . . . .” Philip Babcock Gove, Editor-in-Chief, WEBSTER’S THIRD NEW INTERNATIONAL DICTIONARY OF THE ENGLISH LANGUAGE, UNABRIDGED (Merriam-Webster, Inc: Springfield, MA, 1986). An examination of the uses of “detects” and its variants in the patents reveals that some uses of “detects” fall within the meaning of “measures” while others do not.

“Detects” and its variants appear throughout the patent in a variety of uses. One

use merely refers to the thickness detector as “detecting” “a thickness of the at least one article.” See abstract; col. 2, Ins. 6-7, 7-9, 29-30, 43-44, 65-66; col. 3, Ins. 6-7; col. 6, Ins. 24-25; col. 10, Ins. 24-25; col. 11, Ins. 14-23, 32-47; col. 14, Ins. 42-42; and col. 16, Ins. 24-25, 57-58. A similar use refers to “detecting thickness” without further qualification. See col. 13, Ins. 41-50, 62-63; 65. Yet another related use refers to “detecting” whether the material to be shredded is excessively thick for the capacity of the shredded. In one instance, “too thick” is operationally defined as the material’s thickness exceeding a maximum thickness threshold. See col. 6, Ins. 38-43. In other uses, “overly thick” or “greater than the capacity of the shredder” is not defined. See col. 6., Ins. 46-48; and col. 10, Ins. 15-18. Similarly, a dependent claim in the patent noted that “the thickness detector is a variable thickness detector for detecting and outputting varying amounts of detected thicknesses.” Col. 15, Ins. 1-3.

Another use of “detects” and its variants refers to the relationship between a detected thickness and a predetermined maximum threshold. Thus, some uses refer to “detecting” whether the thickness of the at least one article is “at or exceeds” or “at least” a predetermined maximum threshold. See col. 7, Ins. 49-50; col. 11, Ins. 14-23; col. 14., Ins. 47-50, 58-60, 61-65; col. 15, Ins. 28-30; and col. 16., Ins. 34-37; *see also* Fig. 6. Other uses refer to “detecting” whether the thickness is less than a predetermined maximum thickness threshold. See col. 3, Ins. 8-12; col. 14., Ins. 47-50, 58-60; and col. 16., Ins. 34-37, 40-42.

Similarly, another set of uses refers to the relationship between a detected thickness and a flutter threshold. Some uses refer to “detecting” whether the thickness of the at least one article exceeds a flutter threshold, at least reaches a flutter threshold,

or is at least or exceeds a flutter threshold. See abstract; col. 2, Ins. 57-60; col. 11, Ins. 14-23, 40-47; col. 12, Ins. 29-34; col. 12, Ins. 54-60; col. 12, Ins. 65-67; col. 13, Ins. 3-5; col. 14., Ins. 47-50, 58-60; and col. 15, Ins. 4-8; see also Figs. 7. Other uses refer to “detecting” whether a thickness is below a flutter threshold. See col. 12, Ins. 43-53; col. 13, Ins. 1-2; and col. 17, Ins. 9-11.

Variants on the above uses include a description of a series of thresholds, with the thickness detector “detecting” whether the thickness of the articles to be shredded is below or is at or above those various thresholds. See col. 8, Ins. 5-24; col. 8, ln. 48-col. 9, ln. 2; col. 9, Ins. 11-17; col. 14, Ins. 3-23.

The uses described above are not consistent with ascertaining thickness “in terms of a standard unit.” All of these uses, however, are consistent with ascertaining thickness in terms of “a fixed amount,” such as a maximum thickness threshold, a flutter threshold, various sub-thresholds, or “varying amounts of thickness.” Thus, “detects” in these uses is synonymous with one meaning of “measures.”

In addition, “measure” is used as a synonym for “detect” twice in the patent’s specification. Plaintiffs cite one instance: “The measured or detected thickness of the fluttering article may be more than the actual thickness . . . .” Col. 11, Ins. 40-42. Plaintiffs’ contention that “measured” is a synonym for “detected” in this passage is reinforced by an earlier appearance of “measured”: “The thickness of the article is measured with respect to the zero position of the sensor. Therefore, zeroing the sensor ensures that the thickness of the article is measured accurately.” Col. 10, Ins. 43-46. If “detected” were substituted for “measured” in the latter passage, its meaning would be

clear and unchanged.<sup>4</sup>

Nevertheless, uses of “detects” elsewhere in the patent are clearly *not* synonymous with “measures.” The specification refers to the “detection” of various conditions of the shredder in general or the motor in particular that might affect shredding. One use refers to “detecting” whether diagnostic tests reveal any faults that might impede shredding. See col. 10, ln. 65-col. 11, ln.11. Another refers to “detecting” a performance characteristic of the motor. See col. 2, Ins. 35-37; col. 3, Ins. 8-12; and col. 7, Ins. 1-22. A related use refers to adjusting the predetermined maximum thickness threshold or the shredder capacity based on the controller’s “detection” of certain performance characteristics. See col. 3, Ins. 13-15; col. 6, Ins. 50-57; and col. 7, Ins. 1-22. Finally, several uses also refer to “detecting” by a sensor. In these cases, the sensor merely “detects” the presence or absence of material in the throat or collar of the shredder without gauging the material’s degree of thickness in any way. See col. 6, Ins. 28-29, 41-43; see also Figs. 6 & 7.

In sum, although “measures” is synonymous with many uses of “detects” in the ‘796 patent, it is not synonymous with all of them. As the court has already noted, “claim terms are normally used consistently throughout the patent . . . .” *Phillips*, 415 F.3d at 1314. In the present case, there is no textual reason to believe that the term

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<sup>4</sup> The patent also discusses a method for determining whether an increase in thickness is the result of a fold or wrinkle or of the operator’s inserting additional material into the shredder. The method uses a “rate of change” to distinguish between the various causes of an increase in thickness. As a “rate of change” necessitates the computation of some sort of ratio, it is difficult to see how a “rate of change” can be determined and monitored without measurement. See col. 11, ln. 63-col. 12, ln. 23; col. 12, Ins. 29-34; and col. 18, Ins. 1-9.

"detects" was used inconsistently in the '796 patent. Thus, as defendant argues, the meaning of "detects" in the '796 patent is broader than the meaning of "measures." Moreover, although plaintiff argues that the use of "detects" in the patent is confusing to a person of ordinary understanding, the court disagrees. There is no use of "detects" in the patent that would be unclear to the average person. For these reasons, "detects" in the '796 patent should not be construed to mean "measures," and there is no need for the court otherwise to construe "detects."

**Recommended construction:** no construction necessary.

3. *Term 3: without preventing the operation of the motor in the shredding direction in response to the thickness detector detecting during the operation of the motor that the thickness of the at least one article is at or above the predetermined maximum thickness threshold to thereby prevent unnecessary motor shut-off due to flutter of the at least one article being shredded (claims 1, 21)*

Plaintiffs propose the following construction: "without stopping the motor when it is determined that fluttering has caused the thickness detector to detect that the least one article is at or above the predetermined maximum thickness threshold." Defendant proposes "without stopping or interrupting."

The disputed phrase occurs in the following context in claim one:

the controller being configured to determine, prior to the operation of the motor, whether the thickness detector detects that the thickness of the at least one article to be shredded being received by the throat is below or at or above a predetermined maximum thickness threshold, and in response:

- (a) prevent operation of the motor if the thickness detector detects that the at least one article to be shredded being received by the throat is at or above a predetermined maximum thickness threshold, and
- (b) operate the motor in the shredding direction to drive the cutter elements to shred the at least one article being received by the throat if the thickness detector detects that the at least one article is below the predetermined maximum thickness threshold, without preventing the operation of the motor in the shredding direction in response to the thickness detector detecting during the

operation of the motor that the thickness of the at least one article is at or above the predetermined maximum thickness threshold to thereby prevent unnecessary motor shut-off due to flutter of the at least one article being shredded.

'796 patent, col. 14, lns. 45-67. The appearance of the phrase in claim 21 occurs in substantially the same context. See col. 16, lns. 31-49.

Plaintiffs' proposed construction, "without stopping the motor when it is determined that fluttering has caused the thickness detector to detect that the least one article is at or above the predetermined maximum thickness threshold," adds a qualification not present in the patent. The method described in (b) above fails to stop the motor whenever, during the operation of the motor, the thickness rises above a predetermined maximum thickness level *regardless of the cause of that change in thickness*. If the thickness of the articles to be shredded is increased while the motor is already operating, the motor will not be interrupted. This is because the method does not require the thickness detector to determine "that fluttering has caused the thickness detector to detect that the least one article is at or above the predetermined maximum thickness threshold." Once the motor has begun operation, the thickness detector, as described in claims 1 and 21, has no further function. If an increase in thickness is detected, neither the thickness detector nor anything else ascertains the cause of that increase or does anything in response to the increase. Thus, it is inaccurate to say that the motor will not be interrupted "when it is determined that fluttering has caused the thickness detector to detect that the least one article is at or above the predetermined maximum thickness threshold." The motor will continue to operate regardless of the cause of the increase, and no part of the shredder will attempt to ascertain that cause.

Defendant's proposed construction is also problematic. The court must assume

that defendant's proposed construction, "without stopping or interrupting," is meant as an alternative to "without preventing" in the disputed phrase, rather than as an alternative to the entire phrase. Otherwise, defendant's proposed construction makes no sense. With that proviso, defendant's proposed construction is accurate, clear, and unequivocal. While the court is not convinced that defendant's proposed construction is a significant improvement upon the original, neither does it alter or obscure the meaning of the original. For these reasons, defendant's proposed instruction should be adopted as described above.

**Recommended construction:** without stopping or interrupting the operation of the motor in the shredding direction in response to the thickness detector detecting during the operation of the motor that the thickness of the at least one article is at or above the predetermined maximum thickness threshold to thereby prevent unnecessary motor shut-off due to flutter of the at least one article being shredded.

4. ***Term 4: predetermined maximum thickness threshold (claims 1, 21)***

Plaintiffs contend that no construction is necessary. Defendant proposes the following construction: "preset thickness limit." Defendant offers no argument in support of its proposed construction. Rather, defendant cites definitions of "predetermine" and "threshold" and cites a lengthy passage from the specification of the '796 patent. See Defendant's Markman Brief, Doc. No. 46, Exhs. A-21, A-22, and A-23;<sup>5</sup> and '796 patent, col. 6, ln. 24-col. 7, ln. 22. The cited passage describes the

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<sup>5</sup> Defendant also cites Exh. A-4, consisting of a page from THE McGRAW-HILL DICTIONARY OF SCIENCE AND TECHNOLOGY, listing definitions from "Avogadro's number" to "axis of freedom." The relevance of any of these definitions to the argument regarding Term 4 of the '796 patent is obscure.

thickness detector, its detection of overly thick material to be shredded, its detection of problematic performance characteristics of the motor, and the controller's reduction in the maximum thickness threshold and flutter threshold as a result of detection of problematic motor conditions. Defendant offers no explanation of how the cited definitions and passage described above support its proposed construction. As defendant fails to offer argument to support its construction and as the phrase, "predetermined maximum thickness threshold," does not, on its face, seem difficult to understand or equivocal, there is no need to construe that phrase.

**Recommended construction:** no construction necessary.

5. ***Term 5: fluttering (claims 1, 21)***

Plaintiffs propose the following construction: "measurable waving back and forth." Defendant proposes "waving, bending, flapping, or other similar movement."

Defendant correctly argues that plaintiffs' proposed construction attempts to introduce a variant of the problematic term, "measures," into construction of the patent. The flutter detection system could be said to "measure" some quantity of flutter to the extent that it "ascertain[s] the quantity, mass, extent, or degree" of flutter "in terms of a . . . fixed amount . . ." But substituting "measurable waving back and forth" for all uses of "fluttering" and its variants would be inaccurate. Simply put, not all flutter is measurable by the thickness detector. Indeed, the anti-flutter system inherently presumes that some flutter is measurable or detectable and some is not. The controller turns off the motor only when flutter reaches some measurable or detectable amount. Thus, as far as the patented device is concerned, some flutter simply is not measurable

or detectable. To substitute “measurable waving back and forth” for “fluttering” and its variants, therefore, would be inaccurate. For this reason, to the extent that any construction is necessary, defendant’s proposed construction is more accurate and, therefore, preferable.

**Recommended construction:** waving, bending, flapping, or other similar movement.

6. ***Term 6: motor operating condition (claims 18, 31)***

Plaintiffs propose the following construction: “one of the temperature of the motor and the current flowing through the motor.” Defendants propose “status of the motor’s operation, for example, the temperature of the motor, the current flowing through the motor, or the like.”

Claims 18 and 31 disclose a shredder which monitors “a motor operating condition during the operation of the motor in the shredding direction to determine whether to prevent operation of the motor in the shredding direction.” “Motor operating condition” and its variants are discussed most thoroughly in the patent’s examination of the detection of problematic motor conditions which might trigger (1) a prevention of the motor’s operation or (2) a reduction in the predetermined maximum thickness threshold or in the flutter threshold. In discussing monitoring motor operating conditions and preventing operation of the motor, the specification reads as follows: “The sensors located on the motor **18** can monitor the operating conditions (e.g., the temperature of the motor, the current flowing through the motor, etc[.]) so that the controller **200** can stop the motor if it is overloaded by too many articles being shredded in a conventional

manner.” Col. 13, Ins. 28-33. In discussing monitoring motor operating conditions and reducing the predetermined maximum thickness threshold and the flutter threshold, the specification reads in relevant part as follows:

[T]he shredder **10** also includes a sensor **175** for sensing a performance characteristic of the motor **18**. This sensor **175** may be a motor temperature sensor **175** to detect the temperature of the motor and/or a motor current sensor **175** to detect the current drawn by the motor. . . . For example, if the performance characteristic monitored is temperature, an increase in operating temperature of the motor **18** is indicative that its performance is declining. . . . Likewise, the current flowing through the motor may be the performance characteristic monitored. . . . Any other performance characteristic may be monitored, and those noted above are not intended to be limiting.

Col. 6, ln. 50-col. 7, ln. 32.

Plaintiffs’ proposed construction attempts to limit the performance characteristics of the motor that are monitored to temperature and the current flowing through the motor. The patent specifically disclaims such a limitation. Plaintiffs’ proposed construction, therefore, should be rejected. Defendant’s proposed construction is clear, unequivocal, and accurate. Consequently, the court should adopt defendant’s proposed construction.

**Recommended construction:** status of the motor’s operation, for example, the temperature of the motor, the current flowing through the motor, or the like.

## V. Conclusion

For the reasons described above, the court should adopt the following constructions in construing the disputed terms in the ‘468 and ‘796 patents. The disputed terms are arranged in the order in which the parties discussed those terms. The pages on which this Report and Recommendation discusses each recommendation

are given immediately after each recommended construction.

Recommended constructions in construing the disputed terms in the '468 patent:

1. **Disputed term 1:** said thickness detector is provided in the form of an elongate arm (claims 1, 5); **recommended construction:** said thickness detector is provided in the form of an arm extending from the feed aperture to a switch or a device for detecting movement of the arm (pp. 16-17).
2. **Disputed term 2:** an elongate arm mounted for pivotal movement (claims 1, 5); **recommended construction:** an elongated arm attached in a manner to allow rotation around a fixed point (pp. 17-18).
3. **Disputed term 3:** the thickness detector permits energization of the cutting mechanism (claims 1, 5, 9, 13, 14); **recommended construction:** the thickness detector permits the flow of electricity to the cutting mechanism (p. 24).
4. **Disputed term 4:** the thickness detector prevents energization of the cutting mechanism (claims 1, 5, 9, 13, 14); **recommended construction:** the thickness detector prevents the flow of electricity to the cutting mechanism (p. 24).
5. **Disputed term 5:** the controller is configured to prevent the starting of energization of the cutting mechanism (claims 9, 11); **recommended construction:** the controller is configured to prevent the flow of electricity to the cutting mechanism (pp. 24-25).

6. **Disputed terms 6:** “the controller is configured to start energization of the cutting mechanism” and “said controller being configured to . . . permit energization of the cutting mechanism” (claims 9, 11); **recommended constructions:** “the controller is configured to send electricity to the cutting mechanism” and “the controller is configured to permit the flow of electricity to the cutting mechanism” (p. 25).
7. **Disputed term 7:** movement of said part in the feed-aperture amplifies movement of the detectable element at the sensor (claims 10, 12, 13, 14); **recommended construction:** movement of the portion of the thickness detector in the feed-aperture results in increased movement of the detectable element at the sensor (pp. 18-19).
8. **Disputed term 8:** pivot axis (claims 2, 3, 4, 6, 7, 8); **recommended construction:** no construction necessary or, alternatively, “fixed point around which rotation occurs” (pp. 19).
9. **Disputed term 9:** substantially adjacent to the feed-aperture (claims 3, 7); **recommended construction:** close to, next to, or beside the feed aperture, but not in the feed-aperture (pp. 19-20).
10. **Disputed term 10:** feed-aperture (claims 1, 2, 3, 5, 6, 7, 9, 10, 11, 12, 13); **recommended construction:** the throat, namely the entire space through which materials being shredded are fed into the cutter elements [by agreement of the parties].
11. **Disputed term 11:** wherein part of the thickness detector extends into the

feed-aperture (claims 1, 5, 9, 13; also claim 11 states “the thickness detector having a part extending into the feed-aperture”); **recommended construction:** no construction necessary (p. 18).

12. **Disputed term 12:** in response to (claims 9, 11); **recommended construction:** no construction necessary or, alternatively, “as a result of” (pp. 25-26).
13. **Disputed term 13:** being configured to cause a break in the circuit (claims 2, 6); **recommended construction:** no construction necessary (p. 26).

Recommended constructions in construing the disputed terms in the ‘796 patent:

1. **Disputed term 1:** [the controller being configured to determine whether the thickness detector detects that the thickness of the at least one article to be shredded being received by the throat is] below or at or above [a predetermined maximum thickness threshold],  
and  
[determining whether the thickness detector detects that the thickness of the at least one article to be shredded being received by the throat is]  
below or at or above [a predetermined maximum thickness threshold]  
(claims 1, 21); **recommended construction:** either (1) less than or, alternatively, (2) greater than or equal to (claims 1, 21) (pp. 27-30).
2. **Disputed term 2:** detects (claims 1,21); **recommended construction:** no construction necessary (pp. 31-36).

3. **Disputed term 3:** without preventing the operation of the motor in the shredding direction in response to the thickness detector detecting during the operation of the motor that the thickness of the at least one article is at or above the predetermined maximum thickness threshold to thereby prevent unnecessary motor shut-off due to flutter of the at least one article being shredded (claims 1, 21); **recommended construction:** without stopping or interrupting the operation of the motor in the shredding direction in response to the thickness detector detecting during the operation of the motor that the thickness of the at least one article is at or above the predetermined maximum thickness threshold to thereby prevent unnecessary motor shut-off due to flutter of the at least one article being shredded (pp. 36-38).
4. **Disputed term 4:** predetermined maximum thickness threshold (claims 1, 21); **recommended construction:** no construction necessary (pp. 38-39).
5. **Disputed term 5:** fluttering (claims 1, 21); **recommended construction:** waving, bending, flapping, or other similar movement (pp. 39-40).

6. **Disputed term 6:** motor operating condition (claims 18, 31);  
**recommended construction:** status of the motor's operation, for example, the temperature of the motor, the current flowing through the motor, or the like (pp. 40-41).

Date: October 2, 2012

s/ Nancy A. Vecchiarelli  
United States Magistrate Judge

**OBJECTIONS**

**Any objections to this Report and Recommendation must be filed with the Clerk of Courts within ten (14) days after the party objecting has been served with a copy of this Report and Recommendation. Failure to file objections within the specified time may waive the right to appeal the District Court's order. See [United States v. Walters, 638 F.2d 947 \(6th Cir. 1981\)](#). See also [Thomas v. Arn, 474 U.S. 140 \(1985\), reh'g denied, 474 U.S. 1111](#).**